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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,394	04/27/2006	Philip Marc Johnson	U02-0086296	1284
54494 7590 02/17/2009 MOORE AND VAN ALLEN PLLC FOR SEMC P.O. BOX 13706 430 DAVIS DRIVE, SUITE 500 RESEARCH TRIANGLE PARK, NC 27709				
EXAMINER				
VO, HUYEN X				
ART UNIT		PAPER NUMBER		
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02/17/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/577,394

**Applicant(s)**

JOHNSON ET AL.

**Examiner**

HUYEN X. VO

**Art Unit**

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/27/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. In a telephone conversation with Mr. Steven Phillips on 2/11/2009, examiner indicated that the claims would be allowable if the claims were amended to overcome the 101 issues. However, upon further consideration of the prior art of record, indication of allowable claims is now withdrawn in favor a non-final office action.

### ***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-6 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

4. Claims 1-6 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing (Reference the May 15, 2008 memorandum issued by Deputy Commissioner for Patent Examining Policy, John J. Love, titled "Clarification of 'Processes' under 35 U.S.C. 101" – publicly available at USPTO.GOV, "memorandum to examining corps"). The instant claims neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a

statutory process. For example, the steps of decoding, ordering, choosing, performing, calculating, determining, and resuming are not "tied to" any particular apparatus.

5. Although claims 1-6 appear to fall within a statutory category (*i.e., method*), claims 1-6 encompass nothing more than logic/software modules as per the specification (*the method can be implemented in software, page 8, lines 24-25 and page 12, lines 31-33*). Thus, claims 1-6 are directed to non-statutory subject matter because their scope includes a computer program embodiment, an abstract data structure which does not fall within one of the four statutory categories (*i.e., it is directed to a program per se*). See also MPEP § 2106.IV.B.1.a. Data structures not claimed as embodied in computer readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention, which permit the data structure's functionality to be realized. In contrast, a claimed computer readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory. Similarly, computer programs claimed as computer listings *per se*, *i.e.*, the descriptions or expressions of the programs are not physical "things." They are neither computer components nor statutory processes, as they are

not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Willenegger (USPN 7076005) in view of Smith et al. (USPN 5694414).

8. Regarding claims 1 and 7, Willenegger discloses a method of and receiver for channel decoding speech frames in a receiver capable of multiple (M) codes modes, said channel encoded speech frames comprised of an inband bit portion and a speech portion, said method comprising:

(a) decoding the in-band bit portion of a received frame to obtain confidence levels associated with each of the M codec modes before a decoding error has been detected (*col. 1, line 62-67 together with col. 5, lines 25-67; in-band bit portion of a received frame is first striped off the frame; the in-band bit portion includes "format" identifier used to encode the frame (col. 6, lines 5-7)*);

(a1) ordering the confidence levels from highest to lowest representing a most likely codec mode to a least likely codec mode, respectively, before a decoding error has been detected, based on a Euclidean distance measure (*col. 6, lines 23-30; when a frame is received, a transmission format or coding format is identified for the frame based on the format identifier associated with the frame; the format identifier inherently indicates that the identified coding format has the highest confidence level; obviously other formats other than the format identified by the format identifier would receive lower confidence levels; based on a Euclidean distance measure (col. 7, line 57 to col. 8, line 18)*);

(b) choosing the most likely codec mode based on the highest confidence level to channel decode the speech portion (*col. 6, lines 1-52*);

(c) decoding the speech portion of the received frame using the chosen speech codec mode (*col. 6, lines 1-52*);

(d) performing a frame determination check to determine the quality of the decoded speech frame (*col. 7, lines 1-9, inherently suggesting of some sorts of quality check*); and

(e) if the decoded speech frame is determined to be of poor quality, then choosing the next most likely codec mode 736 corresponding to the next highest in-band bit decoding confidence level and repeating steps (c) through (e) (*col. 6, lines 43-52 and col. 7, lines 1-9*).

Willenegger fails to specifically disclose that the decoding comprising a recursive convolutional decode. However, Smith et al. teach that the decoding comprising a recursive convolutional decode (*col. 13, lines 10-12; convolutional decoder*).

Since Willenegger and Smith et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Willenegger by incorporating the teaching of Smith et al. in order to lower the bit error rate.

9. Regarding claims 6 and 12, Willenegger discloses a method of and receiver for channel decoding speech frames in a receiver capable of multiple (M) codec modes, said channel encoded speech frames comprised of an inband bit portion and a speech portion, said method comprising:

calculating a plurality of in-band decode metrics, one for each speech codec mode before a decoding error has been detected (*col. 1, line 62-67 together with col. 5, lines 25-67; in-band bit portion of a received frame is first striped off the frame; the in-band bit portion includes "format" identifier used to encode the frame (col. 6, lines 5-7); col. 6, lines 23-30; when a frame is received, a transmission format or coding format is identified for the frame based on the format identifier associated with the frame; the format identifier inherently indicates that the identified coding format has the highest confidence level; obviously other formats other than the format identified by the format identifier would receive lower confidence levels*);

ordering the confidence levels from highest to lowest representing a most likely codec mode to a least likely codec mode, respectively, based upon a Euclidean distance measure (*col. 6, lines 23-30; when a frame is received, a transmission format or coding format is identified for the frame based on the format identifier associated with the frame; the format identifier inherently indicates that the identified coding format has the highest confidence level; obviously other formats other than the format identified by the format identifier would receive lower confidence levels*); partially decoding speech data for each speech codec mode (*col. 6, lines 53-58*); determining the most likely speech codec mode based upon the partially decoded speech data and the calculated in-band decode metric data (*col. 7, lines 1-9*); and resuming decoding of the speech data using the most likely speech codec mode (*col. 7, lines 1-9*).

Willenegger fails to specifically disclose that the decoding comprising a recursive convolutional decode. However, Smith et al. teach that the decoding comprising a recursive convolutional decode (*col. 13, lines 10-12; convolutional decoder*).

Since Willenegger and Smith et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Willenegger by incorporating the teaching of Smith et al. in order to lower the bit error rate.

10. Regarding claims 2, 4-5, 8, and 10-11, Willenegger further discloses that the steps (c) through (e) are repeated for a maximum number of iterations (N), where N



$N \leq M$  (col. 7, lines 1-19), wherein the maximum number of iterations  $N$  is determined prior to choosing the most likely codec mode to decode the speech portion based on the highest confidence level (col. 7, lines 1-19), and wherein the maximum number of iterations ( $N$ ) is set to the number of codec modes that exceed a threshold confidence level (col. 7, lines 1-9).

11. Regarding claims 3 and 9, Willenegger further discloses that the steps (c) through (e) are repeated so long as the confidence level for the inband bit decoding with respect to the current codec mode is above a threshold confidence level (col. 7, lines 27-31).

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUYEN X. VO whose telephone number is (571)272-7631. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Huyen X Vo/  
Primary Examiner, Art Unit 2626

2/12/2009

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